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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09 462,024	02 03 2000	WERNER RAHMFELD	3245-710PUS	4586

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EXAMINER

KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

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DATE MAILED: 12 12 2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/462,024

Applicant(s)

RAHMFELD, WERNER

Examiner

Kevin P. Kerns

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-20 is/are rejected.
- 7) ☒ Claim(s) 11, 14, 16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Prosecution Application

1. The request filed on October 20, 2002 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/462,024 is acceptable and a CPA has been established. An action on the CPA follows.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it is unclear what is meant by the "shadow region" of the immersion nozzle. Correction is required. See MPEP § 608.01(b).

Claim Objections

4. Claims 11, 14, 16, and 17 are objected to because of the following informalities: in claim 11, 2nd line of step (a), "be" should be changed to "being" before "parallel". In

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claim 11, 3rd line of step (b), "which" should be replaced with "in which the" before "side rollers". In claim 14, within the "immersion nozzle" limitations, all instances of hyphens between "broad-side" and "narrow-side" should be deleted for consistency with similar terms throughout the claims. In claim 14, 9th line, a comma should be added after "nozzle". In claim 16, 5th line, commas should be added after both "having" and "direction" for further clarity. In claim 17, 3rd line, commas should be added after both "part and" and "other end" for further clarity. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 11-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The terms "linear central rollers" and "linear side rollers" in claim 11 (steps a and b) are unclear terms which render the claim indefinite. The terms "linear central rollers" and "linear side rollers" would also be perceived to be two roller pairs arranged on the opposite four sides of the slab, thereby forming a rectangular slab, whereas the applicant (presumably) means that a plurality of rollers are arranged on the same side of the slab, as shown in Figures 1, 2, 4, and 5.

The term "shadow region" in claim 11 (steps b and d) is an unclear term which renders the claim indefinite. It is unclear to what location the "shadow region" is referring with respect to the immersion nozzle (within the nozzle or beneath it?).

The term "mouth region" in claim 11 (step e) is an unclear term which renders the claim indefinite. It is unclear to what location the "mouth region" is referring (the mouth of the nozzle or the mold?).

The term "their contour lines" in claim 11 (step a) and claim 14, 10th line, is an unclear term which renders the claims indefinite. It is unclear to what structure the term "their contour lines" is referring, as it appears as though the "contour lines" of claim 11 refer to the rollers, while the "contour lines" of claim 14 appear to be referring to "parts" of the slab.

The phrase "the broad-side parts having ... central parts" in claim 14 (lines 8 and 9) is an unclear phrase which renders the claim indefinite. It is unclear as to what structural portions of the slab this phrase is referring.

The phrase "the broad-side parts being formed ... as planar side surfaces" in claim 14 (lines 10 and 11) is an unclear phrase which renders the claim indefinite. It is unclear as to what structural portions of the slab this phrase is referring.

Claim 14 recites the limitations "the mold broad face parts", "the planar-surface side surfaces", and "the mold broad faces". There is insufficient antecedent basis for these limitations in the claim. It is recommended to replace "face" with "side" in the 1st instance, and delete "-surface" in the 2nd instance.

With regard to claims 14 and 16, it has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. In *re Hutchison*, 69 USPQ 138.

The phrase "a preceding and following part of the central part" in claim 16 is an unclear phrase which renders the claim indefinite. It is unclear to what locations on the "central part" the "preceding and following part" is referring (with respect to the casting direction?).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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9. Claims 11-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schrewe (US 4,955,428) in view of Fastert (US 4,716,955).

Schrewe discloses a device and process for continuous casting of slabs with a thickness below 80mm (thin slabs), in which the device includes an immersion nozzle (casting spout and pipe 2) protruding into a laterally adjustable mold 3 with broad and narrow side walls defining the slab 7 to be cast (Figures 2 and 3), a casting container 1 holding a supply of molten metal that forms a slab 7 that partially solidifies into a cast slab with an outer shell and a molten inner region (Figures 1 and 4-6), and a plurality of supporting and guide rollers (8,9) for guiding the slab (Figure 1), in which a plurality of (central and side, including tapering) parallel split rollers (24-26 and 29-31, in Figures 5 and 6), are arranged on a side of the slab, such that the cast slab is subject to forces impinged by the plurality of split rollers, forming a crowned, conically shaped slab surface 27 (abstract; column 1, lines 4-21 and 53-68; column 2, lines 1-57; column 3, lines 3-60; column 4, lines 1-2; and Figures 1-7). Mold 3 (in the area extending below the nozzle 2) has outwardly bulging cross-sections (12,13), in conjunction with side walls 14, establish the casting dimensions (column 3, lines 18-28; and Figures 2 and 3). As shown in Figures 5 and 6, crowned shaped slabs are formed by a plurality of adjacent rollers, arranged in a linear, parallel manner and further including tapered, or transitional, (conical) rollers in Figure 6, forming an angle to one another in both figures (column 3, lines 47-60; column 4, lines 1-2; and Figures 5 and 6). The mouth (opening) of the immersion nozzle is within the range of 0.3 to 0.5 of the distance between the mold broad face/side parts, approximately 0.3 as measured to scale (Figures 2 and 3).

Schrewe does not specifically disclose the geometric mold parameters in terms of the relationship between mold length and conical shape of the slab, as defined by the rollers forming a "transitional region".

However, Fastert discloses a continuous casting method and mold for producing a sheet-like (thin) slab, in which the mold 1 includes a pouring tube 11 for feeding molten metal therein, mold walls (2,3) to define the dimensions of the slab, such that the cross-sectional area of the casting passages decreases progressively from the area at the inlet end to that of the outlet end, over a wide variety of shapes (abstract; column 2, lines 6-50; column 3, lines 32-68; column 4, lines 1-44; column 6, lines 49-57; and Figures 1-9). A crowned slab cross section of Figure 1 would be produced by a plurality of adjacent rollers (including one or more conical rollers) on each side of the slab (Figure 1), and the tapering cross section, being defined by the plurality of rollers, would occur over a large portion of the total mold length (Figures 2a, 3-5, and 9). The geometrical dimensional relationships (progressive reduction/tapering of slab cross section along the mold length) within the mold of Fastert are advantageous for facilitating the thin slab/strand to be withdrawn through the mold without difficulty (abstract; and column 2, lines 40-50).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the device and process for continuous casting of thin slabs, as disclosed by Schrewe, by using the geometrical relationships between the mold length and conical shape of the slab, as taught by Fastert, in order to facilitate

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the thin slab/strand to be withdrawn through the mold without difficulty (Fastert; abstract; and column 2, lines 40-50).

Response to Arguments

10. The examiner acknowledges the applicant's continued prosecution application (paper #15) and preliminary amendment (paper #16), both of which were received by the USPTO on October 20, 2002. Claims 11-20 remain under consideration in the application.

11. Applicant's arguments with respect to claims 11-20 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Rahmfeld et al. and Hartmann et al. references are also cited to show related art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin P. Kerns whose telephone number is (703) 305-3472. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for

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the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

KPK

kpk
December 6, 2002